Docket No.: 050212-0191 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	:	Customer Number: 20277
Toshiaki OKUNO, et al.	:	Confirmation Number: 2297
Application No.: 09/781,564	:	Tech Center Art Unit: 2633
Filed: February 13, 2001	:	Examiner: Dzung D. Tran

For: OPTICAL TRANSMISSION SYSTEM AND METHOD

RESPONSE TO NOTICE OF NON-COMPLIANT APPEAL BRIEF

Mail Stop Appeal Brief
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Notice of Non-Compliant Appeal Brief dated June 2, 2009, submitted herewith is a revised Summary of the Claimed Subject Matter section. An entire Appeal Brief is not being submitted, only the aforementioned section in response to the Notice of Non-Compliant Appeal Brief.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

As discussed at page 2, lines 15-21 of the Summary of the Invention section of the present specification, a conventional multi-drop system, known as wavelength division multiplexing optical transmission system, is a system in which a plurality of signal light components having wavelengths different from each other are transmitted through a single optical transmission line while successively being multiplexed or demultiplexed at respective signal multiplexing or demultiplexing sections. In instances where an optical amplifier is installed on the optical transmission line of such a multi-drop type wavelength division multiplexing transmission system, a plurality of signal multiplexing sections are installed in the optical transmission line connected to the input side of the optical amplifier, whereby multiple-wavelength light including signal light components having wavelengths different from each other multiplexed at the individual signal multiplexing sections is amplified by the optical amplifier (page 2, line 25 through page 3 line 8 of the written description of the specification). Here, the attenuation of signal light caused by optical transmission depends on the transmission length, whereas the respective transmission lengths by which the signal light components multiplexed at their corresponding signal multiplexing sections are transmitted until they are fed into the optical amplifier vary depending on the positions where the signal multiplexing sections are installed (page 3, lines 8-13 of the written description of the specification). As a consequence, the S/N ratio of signal light in the output of optical amplifier may vary among the individual signal light components (page 3 lines 14-17 of the written description of the specification).

The present subject matter addresses and solves problems and difficulties of the

prior art by providing an optical transmission system (independent claims 1, 6 and 11) and method (independent claims 16, 17 and 18) in which fluctuations in S/N ratio among signal light components of multiple-wavelength signal light amplified by an optical amplifier on an optical transmission line are reduced (page 3 lines 18-23 of the written description of the specification).

According to one aspect of the present subject matter, as described in independent claim 1 and depicted in FIG. 1 (page 3, line 24 through page 4, line 18 of the written description of the specification), an optical transmission system is provided which comprises: (1) an optical transmission line 1 (page 11, lines 11-12 of the written description of the specification) through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are transmitted; (2) an optical amplifier 2 (page 11, lines 13-14 of the written description of the specification), installed on the optical transmission line, having a wavelength-dependent noise figure; and (3) a plurality of multiplexing stations 3, 4, 5 (page 11, lines 21-26 of the written description of the specification) each constituted by a signal multiplexing section 31, 41, 51 (page 12, lines 6-18 of the written description of the specification) installed on the optical transmission line connected to an input end side of the optical amplifier, and at least one signal light outputting means 30, 40, 50 (page 12, lines 6-18 of the written description of the specification) for outputting a signal light component multiplexed at the signal multiplexing section; wherein (4), between two of the multiplexing stations adjacent each other, the signal light outputting means of the multiplexing station disposed upstream in a signal light propagating direction outputs a signal light component λ_1, λ_2, λ_3 (page 12, lines 13-18 of the written description of the

specification) having a signal wavelength set so as to yield a noise figure lower than that of the signal wavelength of a signal light component outputted from the signal light outputting means of the multiplexing station disposed downstream (page 4, lines 10-18 of the written description of the specification).

Independent claim 6 describes an optical transmission system comprising (1) an optical transmission line 1 (page 11, lines 11-12 of the written description of the specification) through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are transmitted; (2) a plurality of optical amplifiers 2a, 2b (FIG. 4; page 6, lines 15-18 of the written description of the specification) installed on the optical transmission line, each having a wavelength-dependent noise figure; (3) a first multiplexing station (page 6, lines 15-18 of the written description of the specification) having a first signal multiplexing section installed upstream from the plurality of optical amplifiers in a signal light propagating direction and a first signal light outputting means for outputting a first signal light component multiplexed at the first signal multiplexing section (page 6, lines 21-23 of the written description of the specification); (4) a second multiplexing station (page 6, line 23 through page 7, line 4 of the written description of the specification) having a second signal multiplexing section installed between the plurality of optical amplifiers, and a second signal light outputting means (page 7, lines 1-4 of the written description of the specification) for outputting a second signal light component multiplexed at the second signal multiplexing section; and a receiving station 11 (page 6, line 23 through page 7, line 4 of the written description of the specification), installed downstream of the plurality of optical amplifiers, for receiving the first signal light component having a first

signal wavelength multiplexed at the first signal multiplexing section and the second signal light component having a second signal wavelength multiplexed at the second signal multiplexing section (page 7, lines 5-10 of the written description of the specification). The first signal light outputting means outputs the first signal light component having the first signal wavelength set such that the noise figure between the first signal multiplexing section and the receiving station is lower than that of the second signal wavelength (page 7, lines 10-14 of the written description of the specification).

Independent claim 11 is substantially the same as independent claim 6, but for the second multiplexing station. Independent claim 11 describes an optical transmission system comprising (1) an optical transmission line 1 (page 11, lines 11-12 of the written description of the specification) through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are transmitted; (2) a plurality of optical amplifiers 2a, 2b (FIG. 4; page 6, lines 15-18 of the written description of the specification) installed on the optical transmission line, each having a wavelength-dependent noise figure; (3) a first multiplexing station (page 6, lines 15-18 of the written description of the specification) having a first signal multiplexing section installed upstream from the plurality of optical amplifiers in a signal light propagating direction and a first signal light outputting means for outputting a first signal light component multiplexed at the first signal multiplexing section (page 6, lines 21-23 of the written description of the specification). In claim 11, the second multiplexing station (page 6, line 23 through page 7, line 4 of the written description of the specification) has a second signal multiplexing section installed upstream from the plurality of optical amplifiers, but downstream the first signal multiplexing section, and a

second signal light outputting means (page 7, lines 1-4 of the written description of the specification) for outputting a second signal light component multiplexed at the second signal multiplexing section. The receiving station 11 (page 6, line 23 through page 7, line 4 of the written description of the specification) of claim 11 is installed downstream of the plurality of optical amplifiers, for receiving the first signal light component having a first signal wavelength multiplexed at the first signal multiplexing section and the second signal light component having a second signal wavelength multiplexed at the second signal multiplexing section (page 7, lines 5-10 of the written description of the specification). The first signal light outputting means outputs the first signal light component having the first signal wavelength set such that the noise figure between the first signal multiplexing section and the receiving station is lower than that of the second signal wavelength (page 7, lines 10-14 of the written description of the specification).

Also, as described in independent claim 16 (page 7, lines 15-17 of the written description of the specification), the present subject matter provides an optical transmission method applied to an optical transmission system comprising: (1) an optical transmission line 1 (page 11, lines 11-12 of the written description of the specification) through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are transmitted; (2) an optical amplifier 2 (page 11, lines 13-14 of the written description of the specification), installed on the optical transmission line, having a wavelength-dependent noise figure; and (3) a plurality of signal multiplexing sections 3, 4, 5 (page 11, lines 21-26 of the written description of the specification) installed on the optical transmission line connected to an input end side of the optical amplifier; wherein (4), between two of the signal

multiplexing sections adjacent each other, a signal light component λ_1, λ_2, λ_3 (page 12, lines 13-18 of the written description of the specification) having a signal wavelength with a noise figure lower than that of the signal wavelength of a signal light component multiplexed at the signal multiplexing section disposed downstream in a signal light propagating direction is selectively assigned as a signal light component multiplexed at the signal multiplexing section disposed upstream (page 5, lines 3-11 of the written description of the specification).

The present subject matter, as described in independent claim 17, provides for an optical transmission method applied to an optical transmission system which comprises: (1) an optical transmission line 1 (page 11, lines 11-12 of the written description of the specification) through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are transmitted; (2) a plurality of optical amplifiers 2a, 2b (FIG. 4), installed on the optical transmission line, each having a wavelength-dependent noise figure; (3) a first signal multiplexing section, installed upstream the plurality of optical amplifiers in a signal light propagating direction, for multiplexing a first signal light component (page 7, lines 22-25 of the written description of the specification); (4) a second signal multiplexing section, installed between the plurality of optical amplifiers for guiding a second signal light component into the optical transmission line (page 7, line 26 through page 8, line 4; and (5) a receiving station 11 (page 8, lines 4-10 of the written description of the specification), installed downstream the plurality of optical amplifiers, for receiving the first signal light component having a first signal wavelength multiplexed at the first signal multiplexing section and the second signal light component having a second signal

wavelength multiplexed at the second signal multiplexing section; wherein (6) the first signal light component having the first signal wavelength whose noise figure between the first signal multiplexing section and the receiving station is lower than that of the second signal wavelength is selectively assigned as the signal light component multiplexed at the first signal multiplexing section (page 8, lines 10-16 of the written description of the specification).

Independent method claim 18 is substantially the same as independent claim 17, but for the second multiplexing station. Independent claim 18 describes an optical transmission system including (1) an optical transmission line 1 (page 11, lines 11-12 of the written description of the specification) through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are transmitted; (2) a plurality of optical amplifiers 2a, 2b (FIG. 4; page 7, lines 20-22 of the written description of the specification) installed on the optical transmission line, each having a wavelength-dependent noise figure; (3) a first signal multiplexing section (page 7, lines 22-25 of the written description of the specification), installed upstream of the plurality of optical amplifiers in a signal light propagating direction, for guiding a first signal light component into the optical transmission line. In claim 18, the second signal multiplexing section is installed upstream of the plurality of optical amplifiers but downstream of the first signal multiplexing section, for guiding a second signal light component into the optical transmission line (page 7, line 26 through page 8, line 4 of the written description of the specification); The receiving station 11 is installed downstream of the plurality of optical amplifiers, for receiving the first signal light component having a first signal wavelength multiplexed at the first signal

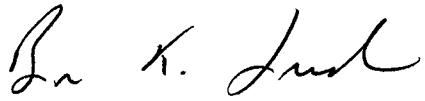
multiplexing section and the second signal light component having a second signal wavelength multiplexed at the second signal multiplexing section (page 8, lines 4-10 of the written description of the specification). The first signal light component has a first signal wavelength whose noise figure between the first signal multiplexing section and the receiving station is lower than that of the second signal wavelength is selectively assigned as the signal light component multiplexed at the first signal multiplexing section (page 8, lines 10-16 of the written description of the specification).

CONCLUSION

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



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